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Dated 18 November 2004

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P027 700 0.00-0325394.5

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THE PATENT OFFICE
L
30 OCT 2003
LONDON

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form).

The Patent Office
Cardiff Road
Newport
South Wales
NP10 8QQ.

1. Your reference — JHH/P104806GB

2. Patent application number *(The Patent Office will fill in this part)* — 0325394.5 — 30 OCT 2003

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)

Latchways Plc
Hopton Park
Devizes
Wiltshire
SN10 2JP

Patents ADP number (*if you know it*) 07315344003

If the applicant is a corporate body, give the country/state of its incorporation — United Kingdom

4. Title of the invention — A Fall Arrest System

5. Name of your agent (*if you have one*)

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

URQUHART-DYKES & LORD
30 Welbeck Street
London, W1G 8ER
England

Patents ADP number (*if you know it*) ~~1C4445002~~ 08857120001

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months

Country	Priority application number (*if you know it*)	Date of filing (*day / month / year*)

7. Divisionals, etc: Complete this section only if this application is a divisional application or resulted from an entitlement dispute (see note f)

Number of earlier application	Date of filing (*day / month / year*)

8. Is a Patents Form 7/77 (Statement of Inventorship and of right to grant of a patent) required in support of this request?
(Answer 'Yes' if:
a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
Otherwise answer NO (See note d)

Yes

Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form	
Description	3
Claims(s)	0 DL
Abstract	0
Drawing(s)	1 + 1

10. If you are also filing any of the following, state how many against each item.

Priority documents	0
Translations of priority documents	0
Statement of inventorship and right to grant of a patent (Patents Form 7/77)	0
Request for preliminary examination and search (Patents Form 9/77)	0
Request for substantive examination (Patents Form 10/77)	0
Any other documents (please specify)	0

11. I/We request the grant of a patent on the basis of this application.

Signature(s) Urquhart-Dykes & Lord Date 31 October 2003

12. Name and daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

Jonathan Higgs 020 7487 1550 jhh@udl.co.uk

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.

b) Write your answers in capital letters using black ink or you may type them.

A Fall Arrest System

The present invention relates to a fall arrest system for use when working on buildings and the like. Such systems include a vertical cable tensioned between a top and bottom anchor and, usually, cable guide means extending from a vertical wall. Inherent to the system are one or more fall arrest devices that are connected to a worker and clipped or otherwise connected to move along the cable. The fall arrest device will include a braking means to prevent rapid descent of a worker should they fall from their working position.

It has been discovered through testing that a vertical fall arrest system, including a cable tethered by a top and bottom anchor and pre-tensioned to a predetermined value, that during fall arrest the force acting on the top anchor can be up to three times the force acting on the falling mass (under gravity).

It will be appreciated that such forces place a large strain on equipment, particularly the top anchor. Since safety is of paramount importance (as it is the purpose of the device), such systems must be designed to account for the multiplying force.

It is an object of the present invention to provide an improved fall arrest system that reduces the force to the top anchor.

In one broad aspect of the invention there is provided a fall arrest system including a cable for mounting between a first and second anchor point and a fall arrest device adapted for movement along said cable, wherein an energy

absorbing means is associated with either the first anchor point or the fall arrest device or both.

In a preferred embodiment the first anchor point is located at an upper end of a vertically mounted cable.

Preferably the second anchor point (preferably located at a lower end of a vertically mounted cable) provides an additional "extension" to the system. By way of example it may deformable or include a slip (clutch) element.

The present invention is explained hereinafter by reference to the accompanying drawing that illustrates a preferred embodiment of the fall arrest system.

The attached drawing illustrates the components for realising the present invention, namely a cable 1, a top anchor point 2, a bottom anchor point 3, one or more cable guides 4 and one or more fall arrest devices 5. The cable is pre-tensioned as known in the art and, for the purposes of illustration, is situated adjacent the vertical wall W of a building.

The present invention is reliant on incorporating an energy absorption means with either the top anchor point 2 or a fall arrest device 5 or both. As illustrated an "overload protector" 6 is installed adjacent the top anchor point 2. The overload protector 6 includes an energy absorber of a generally known type, e.g. high tension spring. Preferably the energy absorber is resilient. Thus when a shock is experienced by the

In a similar way an energy absorber is associated with the fall arrest devices, possibly as part of a work harness (not illustrated). Such an energy absorber improves comfort for a worker (by reducing the "jolt" experienced when a fall is arrested) and also reduces the immediate "pull" on cable 1, most of the energy of which being ordinarily transferred to the fixed anchor point 2.

The combination of energy absorbers in fall arrest devices and anchor points improves the load capability of the overall system and design freedom. However, the invention may be realised without necessarily installing energy/shock absorbers to both.

In a preferred form of the invention the bottom anchor 3 includes a mechanism that provides additional extension to the system. Such a mechanism may be to include a deformable element or slip (clutch) that acts when a force is introduced to the system. This feature, combined with energy/shock absorption brings forces resulting from fall arrest (as experienced at the top anchor) down to acceptable levels.

Accordingly, the present invention can reduce the "three times" force discovered during testing of existing vertical cable systems.